

Chapter 8 · Introduction to Trigonometry

Part 8 · Number Search & Magic Square

Work out each answer below, then find it hidden in the digit grid — across, down, diagonally or backwards.

- $\sin^2 30^\circ + \cos^2 30^\circ$
- $2\tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$
- $\tan^2 45^\circ + 3$
- $\sec^2 45^\circ + 1$
- $\cos 90^\circ$
- $4\cot^2 45^\circ + 1$
- $5\sec^2 0^\circ + 2\sin 90^\circ - 0$
- $\operatorname{cosec}^2 45^\circ$

5	8	3	8	6	3	7	9	4	0	2	6
1	5	4	2	3	5	1	1	6	0	1	5
5	9	4	0	7	8	1	6	1	8	4	4
9	5	9	7	3	1	0	3	4	1	3	1
6	4	7	2	5	2	5	5	3	4	1	9
2	8	3	2	7	6	4	8	3	5	0	3
0	5	6	4	1	3	9	5	3	7	6	7
2	4	2	3	8	8	4	9	6	9	6	5
3	2	8	7	1	0	1	2	2	6	9	1
2	6	6	9	7	8	4	8	0	1	8	4
5	1	4	6	2	7	0	4	8	2	8	3
1	4	8	9	3	2	5	2	8	8	0	9

☐ 1	☐ 2	☐ 4	☐ 3	☐ 0
☐ 5	☐ 7	☐ 2		

Magic Square — every row, column and diagonal adds to the same total.

8	1	6
3		
4		

Magic constant: 15. Fill the empty cells.

□ Concept Bingo

Fill the empty grid below with any 16 terms from the bank — in any order, one per box. Then work down the clue list: each clue describes one term without naming it. Cross off a box only when you are sure which term its clue is describing. Get four crossed in a row, column or diagonal and you have bingo.

Term bank — choose any 16:

SINE	COSINE	TANGENT	COSECANT
SECANT	COTANGENT	HYPOTENUSE	IDENTITY
ADJACENT	OPPOSITE	THETA	PYTHAGORAS
RATIO	ANGLE	RIGHTTRIANGLE	RECIPROCAL
STANDARD	TABLE		

Your bingo card:

Clue list — read each clue and find the term it describes:

- ① $\sin A = \text{opposite} / \text{this side}.$
- ② $\cos A = \text{adjacent} / \text{this side}.$
- ③ $\tan A = \text{opposite} / \text{this side}.$
- ④ The reciprocal of $\sin A$.
- ⑤ The reciprocal of $\cos A$.
- ⑥ The reciprocal of $\tan A$.
- ⑦ The longest side of a right triangle.
- ⑧ An equation true for every value of the angle involved.
- ⑨ The side next to the angle (not the hypotenuse).
- ⑩ The side facing the angle.
- The Greek letter often used for an unknown angle.
- The theorem $AB^2 + BC^2 = AC^2$ used throughout this chapter.

- The general word for a comparison of two side-lengths.
- What A , B , C , or θ usually denote in this chapter.
- The type of triangle every trigonometric ratio in this chapter is defined in.
- What $\sec A$ is, with respect to $\cos A$.
- The kind of angles 0° , 30° , 45° , 60° , 90° are called, as a group.
- Table 8.1 lists the trigonometric ratios of these angles.

You now hold six ratios, one table, and three identities — enough to turn any right triangle into a solvable puzzle of angles and sides. □□